Cancer Death Rate Declined in the 1990s for the First Time Ever

The National Cancer Institute (NCI) announced in November 1996 that the cancer death rate in the United States fell by nearly 3 percent between 1991 and 1995, the first sustained decline since national record-keeping was instituted in the 1930s.

The rates reported by NCI are based on mortality data collected by the National Center for Health Statistics of the Centers for Disease Control and Prevention. For 1995, preliminary data were used, so the precise numbers could change slightly once final data are available. But officials said they are confident that the trend is real.

"The recent drop in the cancer death rate marks a turning point from the steady increase we have seen throughout much of the century," said NCI Director Richard Klausner, M.D. "The 1990s will be remembered as the decade when we measurably turned the tide against cancer."

Klausner added that thousands of scientists, doctors, nurses, patients, volunteers, and others have devoted themselves to conquering this disease, and "this is the news we've been waiting for. We are on the eve of the 25th anniversary of the National Cancer Act, the legislation that made cancer research a high national priority. Now our Nation's investment is paying off by saving lives. We are immensely gratified."

The overall cancer death rate is a composite of rates for many different types of cancer. The mortality trends for major cancers in men and women provide a more detailed picture of the relative success that has been achieved against each disease so far.

Most of the overall drop in the death rate is due to declines in lung, colorectal, and prostate cancer deaths in men, and breast, colorectal, and gynecologic cancer deaths in women. Some of these trends have been noted previously; for example, the breast cancer death rate has been falling since 1989, and the colorectal cancer rates have been falling for about 10 years in men and several decades in women. Other trends, such as the decline in prostate cancer mortality, have only now become apparent.

"The decline in mortality reveals the strides we have made in prevention through tobacco control, in early detection, and in treatment," said Brenda K. Edwards, Ph.D., associate director for NCI's Cancer Control Research Program. "The knowledge that has flowed from years of research, combined with a massive effort to apply that knowledge for the benefit of people, has made the difference."

The decline in mortality has been greater among men than women, although the absolute rate remains substantially higher in men. From 1991 to 1995, the rate declined 4.3 percent in men and 1.1 percent in women. By contrast, from 1971 to 1990, the rate rose 7.8 percent in men and 6.9 percent in women. The gender discrepancy in recent trends is largely a result of changes in lung cancer rates, which, in turn, are strongly influenced by smoking patterns. Lung cancer mortality fell 6.7 percent in men in the 5-year period while rising 6.4 percent in women.

The decline in cancer mortality has been greater among black than white Americans, although rates are still about 40 percent higher in black men than in white men. For blacks the

overall rate declined 5.6 percent, while for whites the rate declined 1.7 percent. The decline in cancer mortality among blacks is largely due to trends in lung cancer in men and colorectal cancer in men and women.

The breast cancer death rate in women declined 6.3 percent between 1991 and 1995, with a larger decline in women under age 65 (9.3 percent) compared with women 65 and older (2.8 percent). These gains reflect the success of both early detection and treatment advances. Cervical cancer deaths fell 9.7 percent, reflecting the continued widespread use of Pap screening. Ovarian cancer deaths fell 4.8 percent, nearly all of the decline due to the trend in women under age 65.

Prostate cancer mortality declined 6.3 percent. The rate for men under age 75 fell 7.4 percent, while the rate for men 75 and older fell 3.8 percent. White men had a greater decline in prostate cancer mortality than black men. Causes of the prostate cancer trend are largely unclear, and additional time will be required to determine whether the decline continues.

Colorectal cancer mortality continued to decline for both men and women, a trend that likely reflects the success of early detection, better treatment, and possibly changes in diet and other risk factors.

Mortality from non-Hodgkin's lymphoma continues to increase among both men and women. The causes of this lymphatic cancer are poorly understood and are under study. NCI scientists plan to publish a detailed analysis of the trends in 1997.

Questions and Answers on Trends in Cancer Mortality

1. How much have U.S. cancer mortality rates changed in the past 5 years, overall and among men and women? How do mortality trends compare in younger and older men and women? How do the recent trends compare with trends in the previous 20 years?

The cancer mortality rate for American men and women of all ages declined 2.6 percent between 1991 and 1995, reversing an increase of 6.4 percent between 1971 and 1990.

The cancer mortality rate for men of all ages declined 4.3 percent in the recent 5-year period, in contrast to a 7.8 percent increase from 1971 to 1990. For men under age 65 the rate dropped 8.7 percent, while for men 65 and older it declined 2.1 percent.

For women of all ages, the cancer mortality rate dropped 1.1 percent in the recent 5-year period, compared with a 6.9 percent increase during the earlier period. For women under age 65, the rate declined 6.5 percent, while for women 65 and older the rate rose 2.9 percent.

When statistics for men and women are combined, Americans under 65 years of age had a 7.7 percent drop in mortality, compared with a 4.7 percent drop from 1971 to 1990, while those 65 and older had a rise of 0.6 percent, compared with a 15 percent rise from 1971 to 1990.

2. Do the trends differ for black and white Americans?

The largest reductions in cancer death rates between 1991 and 1995 have been in blacks. The mortality rate for all cancer sites combined declined 5.6 percent among blacks, in sharp contrast to an 18.3 percent rise in the rate between 1971 and 1990. For black men, the rate declined 8.1 percent from 1991 to 1995, compared with a 28.8 percent increase between 1971 and 1990. For black women, the rate declined 2.5 percent from 1991 to 1995, compared with an increase of 12.2 percent during the earlier period.

Much of the reduction in mortality among blacks is due to a 10 percent decline in lung cancer deaths among black men, which account for one-third of all cancer deaths in black men. Declines in colorectal cancer deaths in both sexes also contributed substantially to this trend. Despite this recent progress, black men still have an overall cancer mortality rate about 40 percent higher than white men, and the rate for black women is about 20 percent higher than the rate for white women.

The overall cancer mortality rate among whites declined 1.7 percent from 1991 to 1995, in contrast to an increase of 5.6 percent from 1971 to 1990. For white men the decline was 3.6 percent from 1991 to 1995, compared with an increase of 5.9 percent from 1971

to 1990. For white women the decline was 0.2 percent from 1991 to 1995, compared with an increase of 7 percent from 1971 to 1990.

For a number of sites, mortality reductions were greater for whites than blacks. Breast cancer mortality dropped 6.6 percent in white women, compared with a 1.9 percent increase from 1971 to 1990, and dropped 1.6 percent in black women, compared with an increase of 20.3 percent in the earlier period. Prostate cancer mortality fell 6.7 percent in whites, in contrast to a 19.6 percent increase from 1971 to 1991, and fell 4.5 percent in black men after an increase of 34.7 percent in the previous two decades. Mortality trends for blacks and whites for specific cancer sites are also under investigation.

3. Which cancer death rates in men have changed the most in the past 5 years? How have mortality trends for specific cancer sites affected the overall rate?

From 1991 to 1995, lung cancer mortality declined 6.7 percent in men of all ages: 13.8 percent in men under age 65, and 2.6 percent in men 65 and older. The drop in lung cancer mortality accounts for more than half of the overall drop in cancer mortality among men during this period.

Mortality from colorectal cancer declined 7 percent in men overall: 5.2 percent in men under age 65, and 7.6 percent in men 65 and older. For prostate cancer, the mortality rate declined 6.3 percent. The rate for men under age 75 fell 7.4 percent, while the rate for men 75 and older (a group that accounts for two-thirds of prostate cancer deaths) fell 3.8 percent. The decline in mortality from colorectal and prostate cancers accounts for most of the remainder, after lung cancer, of the overall decline.

Oral cancer mortality among men dropped 10.4 percent overall: 15 percent in men under age 65, and 5.9 percent in men 65 and older. Mortality from lymphatic cancers in men (Hodgkin's disease, non-Hodgkin's lymphoma, and multiple myeloma) increased 4.1 percent in men of all ages: 0.4 percent in men under age 65, and 6.3 percent in men 65 and older.

4. What are the major factors influencing the trends in cancer mortality among men?

In past decades, cigarette smoking was very common among U.S. men. In 1955, nearly 60 percent of men were smokers. By the end of the 1960s, however, male smoking had dropped to less than 45 percent and this trend continued over the next two decades. The most recent data indicate that in 1994, 28 percent of white men and 34 percent of black men were smokers.

As a result of this temporal pattern in smoking, and the lag time reflecting the carcinogenic process, lung cancer mortality among men peaked in the early 1990s. The subsequent decline in lung cancer mortality reflects the success of tobacco control efforts over the past three decades.

Prostate cancer mortality has increased gradually since at least the early 1970s, beginning a downturn in the early 1990s. The reasons for both the rise and fall in rates are unclear. Understanding of prostate cancer risk factors is lacking, so it is difficult to assess the contributions of possible changes in such risk factors in the population. Medical intervention and management, including advances in treatment and possibly the increased use of early detection, are believed to have played a role. The possibility also exists that part of the earlier increase in prostate cancer mortality reflects an "attribution bias," whereby some number of deaths, particularly among very elderly men, are attributed to prostate cancer. In the past, in the absence of widespread screening, some deaths would have been assigned to other causes. But it is unknown why this phenomenon would result in a subsequent decline in rates. Because the underlying causes of the rise and fall in prostate cancer mortality are largely unknown, it will be necessary to monitor the trend for a longer period to substantiate the recent decline.

Colorectal cancer mortality in men has been falling since the mid-1980s, a trend that has continued into the current decade. The decline is believed to result from a combination of factors, including better treatment, early detection with fecal occult blood test and possibly flexible sigmoidoscopy, and possibly, dietary and other lifestyle changes influencing risk for the disease. One survey showed that the proportion of men 50 and older who had ever had a fecal occult blood test increased from 17 percent in 1980 to 43 percent in 1987. Relevant lifestyle changes may include reduced animal fat and alcohol consumption, greater consumption of fruits and vegetables, increased exercise, and increased consumption of aspirin and related drugs.

5. Which cancer death rates have changed the most in the past 5 years among women? How have mortality trends for specific cancer sites affected the overall rate?

From 1991 to 1995, lung cancer mortality fell 4 percent in women under age 65, but rose 14.3 percent in women 65 and older, for a net increase of 6.4 percent for women of all ages. Breast cancer mortality declined 6.3 percent among women of all ages: 9.3 percent in women under age 65, and 2.8 percent in women 65 years of age and older. The trends in female breast and lung cancer deaths offset each other statistically in terms of the net effect on the overall cancer mortality trend for women.

Mortality from colorectal cancer declined 4.8 percent in women of all ages: 8.4 percent in women under age 65, and 3.1 percent in women 65 and older. Ovarian cancer mortality fell 4.8 percent overall: 9.8 percent in women under 65, and 0.3 percent in women 65 and older. Mortality from cancer of the cervix uteri declined 9.7 percent overall: 9.1 percent in women under age 65, and 7.5 percent in women 65 and older. Next to breast cancer, the decline in mortality from colorectal cancer has had the largest effect on the mortality trend among women, followed by the gynecologic cancers.

6. What are the major factors influencing the trends in cancer mortality among women?

The increase in smoking among women occurred later than for men: In 1955, less than 30 percent of women smoked, but in contrast to men, smoking rates rose through the 1960s. In 1994, 25 percent of white women and 22 percent of black women were smokers. Female lung cancer mortality trends have followed smoking trends, so that mortality has continued to rise in the current decade, though it appears to be leveling off and has in fact declined for women under age 65.

Both screening mammograms and advances in treatment with adjuvant chemotherapy and hormone therapy appear to play a role in the breast cancer mortality decline observed in the 1990s. According to the National Health Interview Survey, the proportion of U.S. women getting mammograms in the previous year rose from 17 percent in 1987 to 36 percent in 1992. In 1978, one survey showed only 4 percent of women reporting regular mammography use, and 13 percent reporting ever having had a mammogram. It is not known how reliable these earlier data are, however. The proportion of women reporting ever having had a clinical breast examination increased from 81 percent to 90 percent between 1987 and 1992, and the proportion reporting an exam in the past year rose from 44 percent to 51 percent.

Sustained high rates of Pap test screening for cervical cancer among U.S. women since the 1970s continue to reduce mortality rates from that disease. Overall Pap screening rates have not changed substantially in recent years. About 67 percent of American women reported recent use of cervical cancer screening in both 1987 and 1992, compared with 64 percent in 1973. However, between 1973 and 1985, certain subgroups, particularly black women and women 60 to 79 years of age, substantially increased their use of the Pap test. The decline in cervical cancer mortality in the 1990s may in part reflect better targeting of screening to populations at risk, higher-quality reading of Pap smears in the laboratory, and improved followup of suspicious Pap tests.

Colorectal cancer mortality in women has been falling since 1950, with an acceleration of the decline in the mid-1980s. As for men, the decline is believed to reflect the success of early detection, treatment, and possibly, changing dietary and other habits. A survey showed that the proportion of women age 50 and older who had ever had a fecal occult blood test increased from 20 percent in 1980 to 47 percent in 1987.

7. What numbers are the 1995 preliminary mortality rates based on? How does this affect the level of confidence in the overall trends?

The 1995 preliminary cancer mortality rates provided by the National Center for Health Statistics (NCHS) are based on 80 percent to 90 percent of all death records for 1995. Previous experience with preliminary NCHS data suggests that they will be very close to the final rates that will be released in 1997.

8. Why were these statistics released before all the data are in? Is a full report to be published? Why are cancer incidence rates not released along with mortality rates?

In reviewing 1994 mortality data and preliminary 1995 data, statisticians at NCI and NCHS noted a clear break in historical trends occurring in the early 1990s: a downturn from the gradual climb in mortality rates that has been observed over the past several decades, both in all cancer sites combined and in several major sites. NCI and NCHS agreed that the scientific and public health significance of this trend dictated that it should be publicized immediately. NCI scientists are preparing a full analysis of the trends.

NCI's estimates of cancer incidence rates for the Nation are based on data from the 10 population-based cancer registries that make up the Surveillance, Epidemiology, and End Results (SEER) Program. The most recent SEER incidence data extend to 1994, and can be found in the *SEER Cancer Statistics Review 1973–1994* on the SEER website (http://www-seer.ims.nci.nih.gov).

9. What are some of the medical and public health implications of the new statistics?

The decrease in lung cancer mortality among men reflects the success of tobacco control programs, but the continued rise among women, which strongly influences the overall cancer rates among women, reveals that the success has been far from complete, and that tobacco control efforts among women must remain a high public health priority. The declines in breast and cervical cancer mortality appear to demonstrate the effectiveness of widespread screening mammograms and Pap screening among U.S. women. In the case of breast cancer, part of the decline is likely also attributable to advances in adjuvant chemotherapy and hormonal therapy.

The decline in colorectal cancer mortality among both men and women similarly suggests that screening with fecal occult blood test and perhaps sigmoidoscopy has been effective. The optimal combination of screening tests has yet to be determined and is under study by NCI.

The cancer mortality rate for Americans age 65 and older has not declined in recent years as it has for younger Americans, although the increase has slowed substantially in the past 5 years. The trends point to the need for continued progress in the prevention, detection, and treatment of cancer among older Americans.

Some recent trends are poorly understood, such as the rise and subsequent drop in prostate cancer deaths and the continuing rise in deaths from non-Hodgkin's lymphoma. These trends are under continuing investigation.

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1–800–4–CANCER (1–800–422–6237)
TTY (for deaf and hard of hearing callers): 1–800–332–8615

NCI Online

Internet

Use http://www.cancer.gov to reach NCI's Web site.

CancerMail Service

To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

CancerFax® fax on demand service

Dial 301–402–5874 and listen to recorded instructions.

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